



SLOVENSKI STANDARD
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**Barve in laki - Ugotavljanje odpornosti proti vlagi - 2. del: Kondenzacija
(izpostavljenost v vlažni komori) (ISO/DIS 6270-2:2016)**

Paints and varnishes - Determination of resistance to humidity - Part 2: Condensation (in-cabinet exposure) (ISO/DIS 6270-2:2016)

Beschichtungsstoffe - Bestimmung der Beständigkeit gegen Feuchtigkeit - Teil 2:
Kondensation (Beanspruchung in einer Klimakammer) (ISO/DIS 6270-2:2016)

Peintures et vernis - Détermination de la résistance à l'humidité - Partie 2: Condensation
(exposition en enceinte) (ISO/DIS 6270-2:2016)

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Paints and varnishes — Determination of resistance to humidity —

Part 2: Condensation (in-cabinet exposure)

*Peintures et vernis — Détermination de la résistance à l'humidité —
Partie 2: Condensation (exposition en enceinte)*

ICS: 87.040

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

The committee responsible for this document is ISO/TC 35/SC 9, *General test methods for paints and varnishes*.

This second edition cancels and replaces the first edition (ISO 6270-2:2005), which has been technically revised. The main changes are:

- a) a principle clause has been added;
- b) the recommendation to use distilled or deionized water for filling the trough has been changed;
- c) a requirement has been added to make sure that condensation forms on all test panels;
- d) a method for the determination of the comparison quantity of condensation water has been added;
- e) information on precision has been added;
- f) the normative references have been updated.

ISO 6270, *Paints and varnishes — Determination of resistance to humidity*, consists of the following parts:

- Part 1: Condensation (single-sided exposure)
- Part 2: Condensation (in-cabinet exposure)
- Part 3: Condensation (in-cabinet exposure with rotating test specimen)

Introduction

ISO 6270 is intended to give consistent conditions and procedures for the conditioning of pre-prepared test specimens which are to be evaluated for defects which may develop when they are subjected to humid ambient atmospheres such as constant condensation-water atmospheres or alternating condensation-water atmospheres.

The tests are designed to clarify the behaviour of the test specimens in humid ambient atmospheres, and to pinpoint any defects in the protection of the test specimens against corrosion. The testing of coatings in these atmospheres does not necessarily give lifetime prediction data.

After conditioning, the test specimens are evaluated either in accordance with agreed International Standards, such as the appropriate part(s) of ISO 4628 [4] or by procedures agreed between the interested parties.

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Paints and varnishes — Determination of resistance to humidity —

Part 2: Condensation (in-cabinet exposure)

1 Scope

This part of ISO 6270 specifies the general conditions and procedures which need to be observed when testing coated test specimens in constant condensation-water atmospheres or in alternating condensation-water atmospheres, in order to ensure that the results of tests carried out in different laboratories are reproducible.

NOTE The shape and preparation of the test specimens, the duration of the test and the assessment of the test results are not covered in this part of ISO 6270.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 3270, *Paints and varnishes and their raw materials — Temperatures and humidities for conditioning and testing*

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3 Designation

The condensation-water test atmospheres are designated as follows:

Test atmosphere	CH	Condensation atmosphere with constant humidity
	AHT	Condensation atmosphere with alternating humidity and air temperature
	AT	Condensation atmosphere with alternating air temperature

4 Principle

A coated test panel is exposed to condensation in a climatic chamber and the effects of the exposure are evaluated by criteria agreed in advance between the interested parties, these criteria usually being of a subjective nature.

5 Test atmospheres

Condensation-water test atmospheres promote the condensation of atmospheric humidity on the surfaces of test specimens, the temperatures of which are lower than the temperature of the saturated air in the climatic chamber, due to radiation onto the chamber walls or to the cooling of the test specimen.

The atmospheric temperature in the climatic chamber during the condensation process described in this part of ISO 6270 is 40 °C.

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The condensation-water test atmosphere may be either a constant-humidity (CH) or an alternating (AHT, AT) atmosphere. If, in addition to the action of the condensation water, the change in atmospheric temperature and the change in atmospheric humidity have an important effect on the test specimens, an alternating atmosphere should be chosen.

The quantity of condensation water formed on the surface of the coating may also exercise an important influence on the action of the water; this quantity will be affected by the ambient temperature in the installation room or by the cooling of the test specimen.

The condensate which drips off the test specimens consists of condensation water and also in some instances of solid and liquid constituents of the coating dissolved in the condensation water or mixed with it.

Reproducible results can only be expected if the test procedure and test conditions remain constant for a series of tests.

In the case of alternating atmospheres, a cycle time of 24 h shall be used as a general rule. A shorter cycle time (12 h or 16 h) and a correspondingly shortened time for the two test periods may be used for the AT test atmosphere.

A summary of test atmospheres, cycle durations and conditions is given in [Table 1](#). Other cycles may be used by agreement between the interested parties.

Table 1 — Condensation test atmospheres

Test atmosphere		Cycle duration		Conditions in working chamber after reaching equilibrium		
Type	Code	Test period(s)	Total	Air temperature	Relative humidity	
Constant-humidity condensation atmosphere		From warm-up to end of exposure		(40 ± 3) °C	Approx. 100 % with condensation on test specimens	
Alternating condensation atmosphere	With alternation of humidity and air temperature	AHT	8 h including warm-up	24 h	(40 ± 3) °C	Approx. 100 % with condensation on test specimens
			16 h including cooling down (climatic chamber open or ventilated)		18 °C to 28 °C	Approaching ambient
	With alternation of air temperature	AT	8 h including warm-up	24 h	(40 ± 3) °C	Approx. 100 % with condensation on test specimens
			16 h including cooling down (climatic chamber closed)		18 °C to 28 °C	Approx. 100 % (≈ saturated)

NOTE Set points and operational fluctuations can either be listed independently of each other, or they can be listed in the format "set point ± operational fluctuations". The set point is the target condition for the sensor used at the operational control point as programmed by the user. Operational fluctuations are deviations from the set point at the control point as indicated by the readout of the calibrated control sensor during equilibrium operation and do not include measurement uncertainty. At the operational control point, the operational fluctuation may not exceed the listed value at equilibrium. When a standard calls for a particular set point, the user programmes that exact number. The operational fluctuations specified for the set point do not imply that the user is allowed to programme a set point higher or lower than the exact set point specified.